WHAT IS CLAIMED IS:

1. A method for executing a scanning procedure comprising the steps of:

(a) generating CT image data for a scan;

(b) generating CT attenuation correction data for the scan;

(c) acquiring a current frame of PET data for the scan in a 3D format; and

(d) simultaneously conducting the following steps:

reconstructing at least a portion of a PET image for the current frame, including the step of overlapping a portion of the current frame with an adjacent frame, and

acquiring at least a portion of a next frame of PET data.

2. The method of claim 1, further comprising repeating step (d) for at least one subsequent frame.

3. The method of claim 1, wherein the 3D format comprises a projection plane format.

4. The method of claim 3, wherein the step of reconstructing at least a portion of a PET image comprises applying a Fourier rebinning process to directly convert the PET data from the projection plane format to a sinogram format.

5. The method of claim 1, wherein the step of overlapping comprises computing a weight for each overlapping slice in the overlapping portion of the current frame and the adjacent frame.

6. The method of claim 1, wherein the adjacent frame comprises a previous frame, and the step of overlapping comprises retrieving a stored overlapping portion of the previous frame.

7. The method of claim 1, further comprising the step of storing an overlapping portion of the current frame to enable overlapping during reconstruction of the next frame.

8. The method of claim 1, further comprising the step of automatically configuring a scan protocol for the PET data based on a scan protocol used to acquire the image CT data.

9. The method of claim 1, further comprising the step of generating a fused PET-CT image with the CT image data and the PET image.

10. The method of claim 1, wherein the reconstructing step includes applying an attenuation correction to the PET image using the CT attenuation correction data.

11. A PET-CT system comprising:

a CT detector;

a PET detector;

at least one memory; and

at least one processor, which is programmed to

control a generation of CT image data for the scan;

control a generation of CT attenuation correction data for the scan;

control an acquisition of a current frame of PET data for the scan in a 3D format; and

control a simultaneous execution of (a) a reconstruction of at least a portion of a PET image for the current frame, including overlapping a portion of the current frame with an adjacent frame, and (b) an acquisition of at least a portion of a next frame of PET data.

12. The PET- CT system of claim 11, wherein the at least one processor is programmed to repeat, for at least one subsequent frame, the step of controlling the simultaneous execution of (a) and (b).

13. The PET-CT system of claim 11, wherein the 3D format comprises a projection plane format.

14. The PET-CT system of claim 13, wherein the reconstruction of at least a portion of a PET image comprises application of a Fourier rebinning process to convert the PET data from the projection plane format to a sinogram format.

15. The PET-CT system of claim 11, wherein the at least one processor is programmed to compute a weight for each overlapping slice in the overlapping portion of the current frame and the adjacent frame.

16. The PET-CT system of claim 11, wherein the adjacent frame comprises a previous frame, and the at least one processor is programmed to retrieve a stored overlapping portion of the previous frame.

17. The PET-CT system of claim 11, wherein the at least one processor is programmed to store an overlapping portion of the current frame to enable overlapping during reconstruction of the next frame.

18. The PET-CT system of claim 11, wherein the at least one processor is programmed to automatically configure a scan protocol for the PET data based on a scan protocol used to acquire the image CT data.

19. The PET-CT system of claim 11, wherein the at least one processor is programmed to generate a fused PET-CT image with the CT image data and the PET image.

20. The method of claim 11, wherein the at least one processor is programmed to apply an attenuation correction to the PET image using the CT attenuation correction data.